

# Disordered Light, Structured Impact: Random Fiber Lasers emerging trends in optics and photonics

*Physics Department, Universidade Federal of Pernambuco, Recife, PE, Brazil.*

**Anderson S. L. Gomes**

**Email: [anderson.lgomes@ufpe.br](mailto:anderson.lgomes@ufpe.br)**

Random Fiber Lasers (RFL), first demonstrated in 2007, have developed to become a photonic platform for basic and applied research in optics and photonics. Differently from conventional lasers that rely on well-defined resonator structures, RFL achieves disordered feedback through light scattering in disordered structures like random fiber Bragg gratings, Brillouin scattering or rare-earth ions, whereas the gain can arise from Stimulated Raman or Brillouin as well as from rare earth nanoparticles.

In this talk, I shall briefly review the basics of RFL and then will exemplify the emerging trends in optics and photonics that has been promoted by the RFL platform in nonlinear dynamics, complex systems, sensing, imaging, ghost imaging and inertial confinement fusion.



## **Short Bio:**

**Anderson Stevens Leônidas Gomes** was born in Recife, Pernambuco, Brazil. He is presently a Professor of Physics at the Physics Department of UFPE working in the areas of nano and biophotonics, non-linear optics and non-linear photonic devices. He co-authored more than 300 scientific publications, with an H-index Google Scholar: 48 and Web of Science: 36. He supervised 39 master's dissertations and 20 doctoral theses. He holds a CNPq Fellowship level 1A, is a Fellow of OPTICA (former OSA), where he was President of the International Council (2011-2012). He is an Academician of the Brazilian Academy of Sciences and a member of the TWAS (The World Academy of Sciences), the Brazilian Physics Society (SBF) and Brazilian Society for Advancement of Science (SBPC). In 2010, he was awarded the National Order of Scientific Merit,

Commander Class in the and Class Gran-Cross in July 2023 area of Physical Sciences, a Presidential Award. He is an Associated Editor of Light: Science and Applications and also Optics and Photonics News.